

ABSTRACT

A layered article and method for forming the same includes a single crystal silicon substrate, a silicon oxynitride layer ( $\text{SixNyOz}$ ) disposed on the silicon substrate, and a single crystal GaN layer disposed on the oxynitride layer. The silicon oxynitride layer can be formed by nitridation of a native oxide layer. One or more integrated electronic circuits and/or integrated optical or optoelectronic devices can be built on the article.